

การศึกษาพหุระดับเกี่ยวกับตัวแปรที่ส่งผลต่อนวัตกรรม : กรณีศึกษาของวิสาหกิจขนาดกลางและขนาดย่อม ในประเทศไทย

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บทคัดย่อ

การศึกษานี้เป็นการศึกษาเกี่ยวกับตัวแปรที่ส่งผลให้เกิดความคิดสร้างสรรค์และนวัตกรรมในธุรกิจขนาดกลางและขนาดย่อม ในประเทศไทย วัตถุประสงค์ของการศึกษาคือ 1) เพื่อสำรวจตัวแปรที่ส่งผลต่อความคิดสร้างสรรค์และนวัตกรรมในหลากหลายระดับ ซึ่งประกอบด้วย ระดับบุคคลและระดับกลุ่มและ 2) เพื่อเสนอแนะแนวทางและบทบาทของการจัดการและการพัฒนาทรัพยากรมนุษย์ เพื่อที่จะสามารถใช้นวัตกรรมเพื่อเพิ่มศักยภาพให้กับองค์กร การศึกษานี้เป็นการวิจัยเพื่อสำรวจ โดยใช้การศึกษาเชิงคุณภาพผ่านการสัมภาษณ์บุคคลและการสัมภาษณ์กลุ่ม โดยมีผู้เข้าร่วมทั้งหมด 60 คน จาก 13 ธุรกิจขนาดกลางและขนาดย่อมที่ได้รับรางวัลนวัตกรรมหรือพิจารณาแล้วว่าเป็นบริษัทที่มีนวัตกรรมจากสำนักงานนวัตกรรมแห่งชาติ ผลการศึกษาพบว่าตัวแปรต่าง ๆ เช่น บุคลิก ความหลากหลาย และผู้นำกลุ่มส่งผลต่อความคิดสร้างสรรค์และนวัตกรรมในองค์กร

คำสำคัญ: ความคิดสร้างสรรค์, นวัตกรรม, ธุรกิจขนาดกลางและขนาดย่อมในประเทศไทย

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งานวิจัยนี้เป็นส่วนหนึ่งของดุษฎีนิพนธ์เรื่องการศึกษาพหุระดับเกี่ยวกับตัวแปรที่ส่งผลต่อนวัตกรรม : กรณีศึกษาของวิสาหกิจขนาดกลางและขนาดย่อมในประเทศไทย โดย นางสาววิชชุกรรณ สัตย์สมบุรณ์ ในการศึกษาระดับปริญญาเอก หลักสูตรทรัพยากรมนุษย์และการพัฒนาองค์กร คณะพัฒนาทรัพยากรมนุษย์ สถาบันบัณฑิตพัฒนบริหารศาสตร์ คณะกรรมการสอบดุษฎีนิพนธ์ประกอบด้วย ผู้ช่วยศาสตราจารย์ ดร. วาสิตา บุญสาธ (ประธานคณะกรรมการ), ดร. มาลินวิษา คักติยากร (คณะกรรมการ) และผู้ช่วยศาสตราจารย์ ดร. อรนุช พฤติพิบูลธรรม (อาจารย์ที่ปรึกษาหลัก)

A Multi-Level Study of the Antecedent Factors of Innovation: Case Studies of Thai Small and Medium-Size Enterprises

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ABSTRACT

This study focuses on the antecedent factors that lead to creativity and innovation in small and medium-size enterprises in Thailand. The objectives of the research are 1) to explore the antecedent factors that lead to creativity and innovation at different levels of analysis, consisted of individual and group level), and 2) to propose the role of human resource as well as guidance in achieving organizational competitiveness through innovation. This study is an exploratory research using the qualitative method through individual interviews and focus group interviews with 60 participants in 13 Thai small and medium-size enterprises that earned innovation award innovative organization from Thailand National Innovation Agency. The findings suggested the antecedent factors that foster innovation at the individual and group level, such as personality, diversity, and group leader.

Keywords: Creativity, Innovation, Thai small and medium-size enterprises

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This research is a part of a dissertation "A Multi-Level Study of the Antecedent Factors of Innovation: Case Studies of Thai Small and Medium-Size Enterprises" by Ms. Wichuwan Satsomboon, Student of the Doctor of Philosophy Human Resource and Organization Development (HROD), the Graduate School of Human Resource Development, the National Institute of Development Administration (NIDA). The dissertation committee consisted of 1) Assistant Professor Dr. Wasita Boonsathorn (Chairperson of Committee), Dr. Malinvisa Sakdiyakorn (Committee Member), and Assistant Professor Dr. Oranuch Pruetipibultham (Dissertation Advisor).

Introduction and Objectives

Multiple changes in both the external and internal environments cause businesses to search for new and more effective ways of doing business. In Thailand, many organizations have confronted numerous difficulties, including economic uncertainty and political instability. This is perhaps especially true of Thai small and medium-size enterprises (SMEs), which have lower competitive advantages compared to multinational corporations (Kuniyoshi, John, & Tadao, 1988). As a result, many businesses have attempted to differentiate themselves to be able to compete in the global market. Thus, innovation is considered to be an important strategy to help the organization stay ahead of others (Drucker, 1985; Lin & Liu, 2012).

Although the literature on creativity and innovation has been dominated by a number of scholars (Oldham & Cummings, 1996), the empirical study on this topic is still underexplored (Becheikh, Landry, & Amara, 2006). In addition, many models have been proposed in the past literature; however, the need to conduct multi-level study is crucial in order to create an integrated framework that contributes to innovation study (Crossan & Apaydin, 2010; Damanpour, 1991). Furthermore, most of the studies related to innovation have been conducted in the western context, which can hardly be adapted to the context of Thailand. This study aimed to recruit Thai SMEs to participate in this research because Thai SMEs are likely to encounter more serious competition compared to technologically-driven, larger companies in terms of innovation (Afuah, 1998). Thus, it is considered vital for Thai SMEs to look for the means to increase their capability to innovate.

The purposes of the study are 1) to investigate the antecedent factors that lead to innovation at the individual, and the group level, and 2) to propose the role of human resource as well as guidance in achieving organizational competitiveness through innovation.

In addition, the research questions for the current study are consisted of 2 questions: 1) What and how do the antecedent factors foster innovation at the individual level in small and medium-size enterprises in Thailand?, and 2) What and

how do the antecedent factors foster innovation at the group level in small and medium-size enterprises in Thailand? The following sections described the related theoretical underpin this study.

The Definitions of Creativity and Innovation

In the academic literature, the terms creativity and innovation are frequently used conversely (McLean, 2005). The term “creativity” has been defined by many authors as the process whereby an individual generates new ideas (Martins & Terblanche, 2003; Shalley, 2004). Some authors also have suggested that creativity is comprised of the ideas that are generated yet never implemented (Schoenfeldt & Jansen, 1997).

On the other hand, the word innovation was first described by Joseph Alois Schumpeter in 1934 in the book “The Theory of Economic Development” (Schumpeter, 2008). Schumpeter implied in his study that creativity and science can lead to technological innovation. Later on, innovation was defined by many scholars as a production of new products or processes that are different or better than existing ones (e.g., Kuniyoshi et al., 1988). In addition, innovation also has been defined as the production of something that provides higher customer benefit (Chandy & Tellis, 1998). Many scholars also have viewed innovation as a way to create wealth for the organizations (Drucker, 1985; Kuniyoshi et al., 1988) and as a key factor creating competitive advantages and sustainability for the organizations (Brown & Eisenhardt, 1995; Kanter, 1997).

In this study, both the term “creativity” and “innovation” are used to describe the particular issues. The author views creativity as something that is novel and useful but that is not yet implemented in any action. Further, creativity is mostly exhibited at the individual level (Amabile et al., 1996; McLean, 2005). In contrast, innovation is the production of creative ideas into something new, such as new products, processes, or services which can generate profit for organizations. Innovation is also related to the study at the group level (Shalley & Gilson, 2004).

The Development of Innovation in Thailand compared with Other Countries

The Global Innovation Index (GII) 2014 with research covering 143 nations across the world, is a measurement for assessing global innovation trends by using 81 indicators with a variety of themes (Global Innovation Index, 2014). The study showed that among the Asian countries, Singapore was ranked 7th, which was the highest among other nations, followed by Malaysia and Thailand, which were ranked at 33rd and 48th respectively on innovation.

The GII implied that Thailand still has a lower ranking compared with the neighboring countries (e.g., Malaysia and Singapore). As a result, Thailand will never catch up with the neighboring countries in terms of economic growth and investment attractiveness due to the low level of innovation capacity. Thus, it is considered an urgent matter for Thailand's policy makers to emphasize innovation strategies in order to strengthen the nation's competitive advantage (Chutiwanichayakul, 2005).

A Review of the Antecedent Factor Research on Innovation

The objective of antecedent factor research on innovation is to explore the variables that foster or impede creativity and innovation regardless of the process in which creativity is formed. Essentially, the development of research in innovation begins at the individual level and then proceeds to the group level.

Individual level

At the individual level, much of the research has involved the term *individual creativity* rather than *innovation*. There are a variety of antecedent factors that contributed to the creativity study at the individual level, such as motivation (Amabile, 1983; Lovelace, 1986); intelligence; personality (Feist, 1999; Peterson & Carson, 2000); and leadership (Peters & Waterman, 1982).

Amabile's (1983) social psychological model identifies three components of creativity: domain-relevant skills, creativity-relevant skills, and task motivation. The author pointed out that first, domain-relevant skills or expertise is the foundation of

all creativity. This component includes knowledge, technical ability, and special talents. Second, creativity-relevant skills include an application of problem-solving techniques, cognitive style, and working style. Finally, task motivation can be divided into two forms: intrinsic task motivation and extrinsic task motivation.

In addition to Amabile's framework, Lovelace's (1986) motivational framework for stimulating creativity attempted to explain the theory based on Maslow's (1943) need hierarchy theory of motivation. He proposed that self-actualization will motivate the person to express creativity. However, it has to be ensured that lower levels of needs are fulfilled. Lovelace discussed the idea that if people have a need for self-actualization (the highest level of need), that person is likely to have a motivation to exhibit creativity.

Furthermore, the particular strand of creativity research at this level also pointed out the characteristics and the personality traits of a creative person. For instance, Gough (1979) created the Creative Personality Scale (CPS), which is an instrument that assesses the creativity of a person. Gough obtained data from 1,701 individuals from a wide range of ages and occupations. For example, scientists, architects, and engineering students were included in the study.

In the Thai context, there are some works that have explored the relationship of creativity and individuals. For example, Pawakanan (2005) discussed the Spiritual Quotient (SQ) as an antecedent factor to creativity. It is a significant factor for leveraging creativity, which leads to organizational innovation (Promsri, 2005). Additionally, Jampadee (2011) in her study of the effect of self-efficacy, creative styles, and individual factors on innovative work behavior suggested that creative style is important in predicting work behavior.

Group level

Although much of the literature have pointed out that both individual and social environmental variables influence the level of creativity at the group level (e.g., Amabile et al., 1996; Oldham & Cummings, 1996), the group level of analysis has received the least attention from researchers compared to individual and organizational

level of analysis (Amabile et al., 1996). Traditionally, the antecedent factor at this level is group structure. The first scholars that contributed to the topic of group structure and innovation were Burns and Stalker in 1961 (McLean, 2005). Burns and Stalker's (1961) concept of "organic" the organizational structure of small working groups demonstrated the model by investigating 20 manufacturing firms and exploring whether differences in the technological and market environments affected the structure and management process of the firms. Finally, the notion of the mechanistic organization and organic organization were derived.

By the early 1980s, leadership style had become one of the major focus antecedent factors leading to innovation. At a group level perspective, leaders are advised to create a group environment, and influence group innovation (King, 1989). In the study of Quinn, Baruch and Zien (1997), it was concluded that the most important factor in stimulating innovation is leadership because only managers can make decisions concerning the organizational visions and supportive environments that foster innovation. Much of the work such as that of Peters and Waterman (1982) and Kanter (1983) have contributed to the study of participative and democratic styles of leadership which influence innovation.

Later on, transformational leadership and participative leadership continued to be considered a key determinant of organizational innovation (Howell & Higgins, 1990). More recent works draw much attention to management as the source of innovation. For instance, Jung, Wu, and Chow (2008) argued for a positive relationship between transformational leadership and organizational innovation.

Significance of Thai SMEs to the Thai Economy

According to the SMEs white paper report 2014 conducted by the Office of Small and Medium Enterprises Promotion (OSMEP) in Thailand, the total Thai gross domestic product (GDP) in 2013 was worth 11,898,710 million Baht. Such an amount means that SMEs accounted for 37.4% or 4,454,939.6 million Baht of the total Thai GDP. Further, the number of the SMEs was in total 2,375,368 enterprises in 2007. Additionally, the number of SMEs increased to 2,900,759 enterprises in 2009 (SMEs

Summary Report, 2013). In other words, SMEs accounted for 99.60 % of 2,924,912 enterprises in Thailand in 2007. As such, the employment rates of SMEs are the major contribution of the Thai economy, accounting for 77.86 % of the overall employment rate in Thailand in 2007 (OSMEP, 2007).

Thus, SMEs are considered the backbone of the country and play a very important role in driving the economic growth and significantly help to reduce the unemployment rate in most developing countries (Asasen, Asasen & Chuangcham, 2003).

The Relationship between HR and Innovation

There are a great deal of evidence showing the relationship between HR and organizational creativity and innovation. Stern (1992) pointed out that HRD policy, and effective training and development can influence corporate creativity. These findings are also in line with those of Gupta and Singhal (1993), who stated that effective human resource policy can make an organization become innovative and creative. Further, Shipton et al. (2006) pointed out the importance of the role of HR in promoting organizational growth and innovativeness, as well as productivity, through the existence of skilled human capability.

Methodology

This dissertation was an exploratory research using the inductive approach to explore the research questions. According to Saunders, Lewis, and Thornhill (2003), inductive approach allows researchers to have a chance to investigate phenomena in order to find more explanations of a particular situation. Moreover, following Eisenhardt (1989) and Yin (1989), the qualitative multiple-case study design was employed in this study. According to Lincoln and Guba (1985), qualitative methods are appropriate for the research that seeks an in-depth understanding of complexities and processes, for research on little known phenomena. In addition, Yin suggested applying the case study method when the researchers aim to address descriptive questions that can help them understand a situation more clearly.

Sample Selection

The National Innovation Agency (NIA) was contacted in order to obtain cooperation for the sampling process. There were 75 companies recommended by the NIA as the companies that had earned an innovation award or the companies that had been recognized as innovative organization from 2008 until 2015. The recommended companies were categorized into bio-business, eco-industry, design and solutions, and others. Bio-business included functional food, medical, and the tourism industry. Eco-industry covered, eco-products, and so on. Design and solutions covered agricultural solutions, creative design, logistics, and the biomedical industry. Lastly, other industries included petrochemicals, auto-parts manufacturing, and so on.

Then, the stratified random sampling technique was employed to select 40 companies based on the following criteria: 1) the targeted companies needed to be small or medium size organizations; 2) the companies had to have earned innovation awards or to have been recognized as innovation by the NIA; and 3) the companies had to be located in Bangkok and the metropolitan areas in order to have convenient access to the case companies. The stratified random sampling technique served as a tool to divide the entire population into different subgroups which allowed the researchers to randomly select the final cases proportionately from the different subgroups.

After 40 companies were randomly selected, the researchers contacted these companies. However, 13 out of 40 companies allowed the researchers to have an interview. Then, 1 to 8 employees for each company were selected based on purposive sampling technique. This technique is normally used to choose small numbers of participants that are particularly informative (Nueman, 2005). In addition, the criteria of selecting participants were as follows: 1) the participants had to be persons that were working in the research and development (R & D) department, or persons that have been working in a department related to innovation, or the persons that were key in helping the organizations achieve an innovation award from the NIA; and 2) the participants had to have worked for the company for at least 3 years in order to understand the culture and system of the organizations.

In addition, the researchers decided to interview two levels of participants at each company in order to gain an in-depth understanding for the innovation study. Management level refers to a person that can make decisions concerning the company's policy as well as the direction of the organization. However, how those directions cascade to lower levels of employees was cross-checked by interviewing the workers. Furthermore, different viewpoints of those two levels of participants were expected to arise.

Finally, the participants of this study comprised 60 participants (30 managers, and 30 staff members) from 13 companies in Bangkok and metropolitan provinces. With the time limitations, 1 out of 13 companies allowed researchers to conduct a focus group instead of individual interviews. Thus, there were 2 focus groups (3 persons for each group) and 54 individual interviews.

The ages of the participants ranged from 24 years old to 52 years. The average age of the participants was 35.6 years. There were 44 male and 16 female participants. In addition, 46.67% of the participants are working in R&D department, and 18.33% are working in Marketing and Sales department. On average, the participants had 6.16 years of experience working with the current company.

A summary of the information on the case study companies and the date of interview are presented in the following table. In order to ensure anonymity, for the company codes, the researchers used either the first or both the first and second letter of the full name of the companies, for example, company K and company EC. For the position of the participants, the researchers used M to represent the manager, and S to represent the staff.

Table 1 A summary of the information on the case study companies

No.	Company codes	Number of employees	Types of business	Location	Established year	Date of interview	Number of participants	Interview Type
1	K	6	Agricultural industry	Bangkok	2012	5th Oct 2015	3 (1M, 2S)	Individual
2	EC	80	Software and application producer	Bangkok	2004	6th Oct 2015	6 (3M, 3S)	Group
3	I	10	Medical tool manufacturing	Bangkok	2012	12th Oct 2015	2 (1M, 1S)	Individual
4	C	50	Medicine manufacturing	Bangkok	2010	10th Oct 2015	4 (2M, 2S)	Individual
5	EI	150	A semi-conductor producer	Bangkok	1983	1st Dec 2015	8 (3M, 5S)	Individual
6	T	100	Petrochemicals & Chemical manufacturing	Samutprakarn	2001	14th Dec 2015	5 (3M, 2S)	Individual
7	S	200	Automobile parts manufacturing	Samutprakarn	1987	11st Dec 2015	6 (3M, 3S)	Individual
8	Y	200	Automobile parts manufacturing	Bangkok	2001	15th Dec 2015	7 (3M, 4S)	Individual
9	SN	30	Tilemanufacturing	Bangkok	2007	11st Apr 2016	6 (3M, 3S)	Individual
10	B	200	Medical manufacturing	Nonthaburi	1983	3rd Dec 2015	3 (2M, 1S)	Individual
11	TO	180	Umbrella manufacturing	Samutprakarn	1990	3th May 2016	3 (2M, 1S)	Individual
12	O	6	Medical tool manufacturing	Bangkok	2012	4th May 2016	3 (1M, 2S)	Individual
13	YD	110	Digital content producer	Bangkok	2006	4th May 2016	4 (3M, 1S)	Individual

Data Analysis

Conventional content analysis where the researcher uses frequency by counting the occurrences of a word, and themes, were applied in this study as an initial method to filter the data. Conventional content analysis is considered as inductive category development (Mayring, 2000) since it avoids using preconceived categories acquired from the literature (Kondracki & Wellman, 2002). In order to accomplish this task, the three-phase procedure of data analysis proposed by Miles and Huberman (1994) was applied. This three-phase procedure included: a) data reduction, b) data display, and c) conclusion drawing and verification as described in the following.

During the data reduction phase, a data transcription was conducted before analyzing the data. Then, the data were first analyzed using open coding. Open coding is defined as a method to study the data with the purpose of comparing, conceptualizing, and placing the data into categories (Strauss & Corbin, 1990). Later, in order to identify all of the important aspects of the data, axial coding was utilized. Axial coding helps to interconnect the categories. According to Bryant and Charmaz (2007), axial coding supports the researchers in being able to draw relationships of the categories in order to obtain a holistic view of the data.

The researchers began to read through each transcript carefully to ensure that the data would not get lost. Once the researchers highlighted the text or phrases that appeared as keywords for each research question, the researchers applied the codes as preliminary codes for each category. Then the researchers coded the remaining transcripts and applied preliminary codes and assigned new codes if the data could not fit the existing codes. Finally, the researchers examined the codes again in order to avoid co-occurrences. During the data reduction phase, all the data was recorded in the excel file.

The data display is the second phase of the data analysis described by Miles and Huberman (1994). It is a tool to present the findings of the data reduction. The researchers applied tables, matrices, and quotations in order to organize and demonstrate the results of each individual and focus-group interview.

During the final phase of the data analysis, or the so-called conclusion drawing and verification phase, the researchers drew conclusions concerning the results based

on the data displays and then verified the findings by evaluating the trustworthiness of the data findings based on Lincoln and Guba (1985). The following section describes the findings of this study.

Findings

The research findings were reported based on the analysis of both the verbal and nonverbal interactions from the interviews and focus groups. The numbers were used to represent the interviewees, and the letters M and S were used to represent the position of the participants (manager and staff member) in order to ensure the anonymity of the participants. For example, interviewee #1(M) represents interviewee number 1 who is working as a manager. In addition, at the end of each quote, the demographic information of the participants was addressed. For example, “Male, 26 years old, Research and Development” refers to a male interviewee who is 26 years old and working for the R&D department. Direct interview quotes were used to highlight and personalize the data. The quotes were edited for grammatical clarity. However, a transcription was done in order to preserve the original meaning of each comment as much as possible.

RQ 1: What and How the Antecedent Factors Foster Innovation at the Individual Level

The antecedent factors that support innovation as discussed in this part of the study focused on the factors that foster creativity at the individual level. Three themes were derived from the interviews: 1) skills and knowledge, 2) motivation, and 3) personality. Out of 143 clauses referring to 1 out of 3 themes, 48 were allocated to skills and knowledge, 46 to motivation, and 49 clauses to personality.

Theme 1: Skills and knowledge

Wiig (1993) defined knowledge as the understanding or know-how that the person possesses. In addition, knowledge is the basic requirement that enhances the intelligent behavior of a person. When the participants were asked about their opinions of the antecedent factors that support innovation at the individual level, skills and knowledge were mentioned 48 times as an important factor. Furthermore, there were 3 sub-themes derived from the findings: a) broad experience, b) job knowledge, and c) technical skills.

Some of the participants mentioned experience that could broaden their vision and ideas. Here is another example from interviewee #43, a manager from company SN.

Interviewee #43(M): "I think experience and knowledge can support innovation. If that person has a chance to participate in exhibitions, fairs, or company visits, he or she tend to have more experience and knowledge regarding to a particular issue compared to a person who has never participated in such activities. Let's give an example of my case. I had a chance visiting suppliers site in overseas many times. I have new vision regarding how to utilize new material to apply with our project. Thus, I came back to Thailand, I discuss with my team and finally we came up with new projects which can utilize the rice to create a table top. The products have been launched now."

(Female, 48 years old, Business Development)

In sum, according to the findings, many of participants stated that skills and knowledge can help facilitate new ideas. They further suggested that knowledge should be considered as a foundation that could broaden their vision and help them come up with innovative projects.

Theme 2: Motivation

Another factor that was raised by the participants was motivation. Motivation was defined as the process that can promote the goal-directed behavior of individuals. Motivation was address 46 times by the participants. According to them, motivation could be divided into 2 categories: intrinsic motivation and extrinsic motivation.

Most of the participants suggested that extrinsic rewards are motivated them rather than intrinsic one. Here is the example from interviewee #28, a staff from company T.

Interviewee #28(S): "...In addition to this, incentive is also a part to come up with creativity. In my case, if I get incentive when I have to figure out new ideas, I will be more productive."

(Female, 27 years old, Research and Development)

On the other hands, some participants replied that they are motivated by intrinsic motivation rather than external rewards for example, interviewee #38, a staff member at company Y.

Interviewee #38(S): “Actually, incentive or reward can motivate some of employees but it can’t apply for all. Our employees who work for R&D will proud when they can think something differently. They like thinking new things. They will not be motivated by incentives.”

(Male, 36 years old, Research and Development)

In sum, there are a variety of viewpoints regarding intrinsic and extrinsic motivation. For example, 20.28% out of 32.17% of the participants that replied that motivation was important stated that they have a willingness to do something when they have an incentive to do so. However, some of the participants agreed that the extrinsic motivation strategy could not be applied to all employees because some employees are motivated by intrinsic motivation. These employees like to think new things, because the project itself is a challenge, and they enjoy doing such projects. Further, some participants suggested that creating an atmosphere or learning opportunity for those creative individuals may enhance their ability to be innovative.

Theme 3: Personality

Personality refers to the characteristics of a person that distinct from other persons. The word of personality appeared 49 times during the interviews. Moreover, there were 4 sub-themes representing the essential characteristics that lead to individual creativity: a) creative; b) ambitious; c) curious and d) observational types of persons derived from the findings.

Some of the participants stated that personality was one of the factors that support creativity. It shapes the way that some people can create new things while some others cannot.

Interviewee #51, an assistant director at company TO, addressed the idea of the observational personality of employees.

Interviewee #51(M): “In my idea, personality of a person influence creativity. People who are observational to things tend to have more creativity than others.

Moreover, the people who have vision tend to create innovative things. Moreover, if he/she can think or develop a vision that others can't come up with or can't imagine, he/she tends to have a creative mind. In addition, most of our staff still lack of some characteristics that relate to innovation. I think these qualities can foster through many activities and strategies."

(Male, 35 years old, Research and Development)

In sum, most of the participants mentioned a variety of characteristics of a person that influence creativity. They further indicated that personality is one of the qualities of an individual. Creative individuals have the ability to adapt themselves to situations and are eager to learn new things.

The antecedent factors that foster innovation at the individual level were summarized below.

Table 2 A Summary of the Antecedent Factors that Foster Innovation at the Individual Level

No.	Themes	Sub-themes	All participants (n = 60)		Managers (n = 30)		Staff (n = 30)	
			f	%	f	%	f	%
1	Skills and knowledge	Broad experience	19	13.29	15	16.48	4	7.69
		Job knowledge	18	12.59	11	12.09	7	13.46
		Technical skills	11	7.69	9	9.89	2	3.85
		Total	48	33.57	35	38.46	13	25.00
2	Motivation	Extrinsic	29	20.28	10	10.99	19	36.54
		Intrinsic	17	11.89	11	12.09	6	11.54
		Total	46	32.17	21	23.08	25	48.08
3	Personality	Creative	40	27.97	26	28.57	14	26.92
		Ambitious	5	3.50	5	5.49	0	0.00
		Curious	3	2.10	3	3.30	0	0.00
		Observational	1	0.70	1	1.10	0	0.00
		Total	49	34.27	35	38.46	14	26.92
Grand total			143	100.00	91	100.00	52	100.00

The above table illustrates that the most frequently-addressed factors by all participants at this level were personality (theme 3) 34.27%, skills and knowledge (theme 1) 33.57%, and motivation (theme 2) 32.17%. However, from the managers' viewpoint, skills and knowledge (theme 1) and personality (theme 3) were the most commonly-addressed factors. On the other hand, motivation (theme 2) was the most frequently-addressed factor by the staff.

RQ 2: What and How the Antecedent Factors Foster Innovation at the Group Level

The antecedent factors that support innovation in this part focused on the factors that foster creativity by looking only at the group level. Four themes were derived from the findings: 1) diversity/group structure, 2) cohesiveness, 3) group leader, and 4) team climate.

Out of 99 clauses referring to 1 of the 4 themes, 42 were allocated to the diversity/group structure, 7 to cohesiveness, 19 to the group leader, and 31 clauses to the team climate. The following statements described the findings of each theme.

Theme 1: Diversity/group structure

Diversity refers to understanding and valuing the differences among people that are from different backgrounds, for example, a diverse education background, gender, age, nationality, culture, and social affiliation (Esty, Griffin, & Schorr-Hirsh, 1995).

An overwhelming majority of the participants addressed the idea that diversity and group structure were the most important factors at the group level. The participants mentioned diversity 42 times. The following statement highlights the importance of diversity, which was regarded as a factor that leads to creativity at the group level. Interviewee #24, who had worked as a manager in the R & D department at company T for 3 years, shared his experiences about this issue in the following statement.

Interviewee #24(M): "I think people with different age and gender work differently. I mean in our team, we do have different generation of people. The older people have more working experiences and they can guide the

younger ones. Furthermore, in our organization, we do have a Korean staff. Diversity in nationality can also be the case. We have more and different ideas.”

(Male, 38 years old, Research and Development)

In sum, a majority of the participants suggested that diversity was one of the factors that influence new ideas. They stated that when they have a diverse background of employees, new ideas are mostly generated that result in innovation. In addition, some of the participants indicated that team members should be diversified in order to create a group with a variety of backgrounds, which can be an alternative way to facilitate a higher degree of creativity.

Theme 2: Cohesiveness

Cohesiveness was defined as a dynamic process which supports the members of the group in terms of “sticking” together in order to pursue the same objectives (Carron, 1982).

This factor was addressed by the participants 7 times. The following is an example of this issue. Interviewee #43, a manager at company S, mentioned that the relations of a group could positively promote innovation. However, too much cohesion may negatively influence innovation. She shared her experience with this issue in the following statement.

Interviewee #43(M): “I think the relationship among the group members can influence innovation both in the negative and positive ways. For a positive side, when we trust and have a good relationship with other teammates, we will share knowledge or ideas with them. We will have a confident to do so. For a negative side, I think when people have good relationship to others employees. They tend to think that those ideas from their colleagues are good even some times those ideas are bad. They tend to take side. We can often see this in the Thai culture—the seniority and “kreng jai” culture.”

(Female, 48 years old, Business Development)

In sum, cohesiveness is one of the factors that have a relationship with creativity. Some of the participants suggested that group activities and some HR

activities might help create a positive consequence regarding group relations. When there is a high degree of cohesiveness, employees can raise their ideas to others and are able to work with other team members effectively. In addition, some of the participants mentioned that cohesiveness is another factor that is associated with diversity. They further suggested that when there is too much diversity, there seems to be less cohesion among members.

Theme 3: Group leader

Group leader defined as someone who provides guidance, instruction, direction, and encourage for innovation. There were 19 clauses mentioned about the group leaders during the interviews. The following is an example from interviewee #52, a manager of company TO. He has been working in the production department around 8 years.

Interviewee #52(M): "Well, for me a leader of a group is important. If the head doesn't care about innovation, other employees won't do anything related to innovation. We, as the managers, have to encourage our members to think creatively."

(Male, 36 years old, Production)

In sum, most of the participants agreed that the group leader is a person that influences innovative activities within the group. Moreover, some participants also suggested that the group leader should encourage and help employees think creatively by allowing them to be able to control their projects and to have sufficient working time to think of other innovative projects.

Theme 4: Team climate

Team climate refers to the shared perceptions of behaviors, practices, and procedures within a work environment that are important for the team (Basaglia et al., 2010, p. 544).

There were 31 clauses in which the team climate was mentioned by the participants. The following quotes are examples of the participants' viewpoints. Interviewee #13, a manager at company C, reported that a positive team climate influences innovation in a variety of ways.

Interviewee #13(M): “In my point of view, good climate and environment in a team can support innovation activity. Let’s compare 2 teams. The first team has a climate that allows all of the team members to have freedom to think. In contrast, the second team has negative climate. In other words, the members are working only their routine job. Managers or leaders of the team haven’t given any authority and freedom for employees to think for the new projects. These members have been less participative in group activities. As a result, I confidently believe that the first group has more likely to produce innovation rather than the second group. ...”

(Male, 34 years old, Research and Development)

In sum, many of the participants indicated that a positive team climate where the organization provided practical support for innovation tended to yield a higher degree of innovation. Moreover, some participants stated that a positive team climate in their organizations, where the team members were willing to help and support each other, could enhance the degree of innovativeness. In addition, some of them also pointed out that a positive team climate can be implemented by the leader.

The following table described a summary of the antecedent factors that foster innovation at the group level.

Table 3 A Summary of the Antecedent Factors That Foster Innovation at the Group Level

No.	Themes	All participants (<i>n</i> = 60)		Managers (<i>n</i> = 30)		Staff (<i>n</i> = 30)	
		<i>f</i>	%	<i>f</i>	%	<i>f</i>	%
1	Diversity/group structure	42	42.42	29	50.00	13	31.71
2	Cohesiveness(trust/openness)	7	7.07	5	8.62	2	4.88
3	Group leader	19	19.19	7	12.07	12	29.27
4	Team climate	31	31.31	17	29.31	14	34.15
Total		99	100.00	58	100.00	41	100.00

According to the above table, there were 4 themes mentioned by the participants. The most frequently-addressed factors mentioned by participants were diversity/group structure (theme 1) 42.42%, team climate (theme 4) 31.31%, group leader (theme 3) 19.19, and cohesiveness/trust openness (theme 2) 7.07%. However, from the managers' points of views, diversity/group structure (theme 1) was the most frequently-addressed factor, accounting for 50%. In contrast, from the staff's point of view, team climate (theme 4) was the most frequently-addressed factor, accounting for 34.15% of all the factors reported by the staff.

Conceptual Framework

After a field survey, a conceptual framework was derived as can be seen in the following figure.

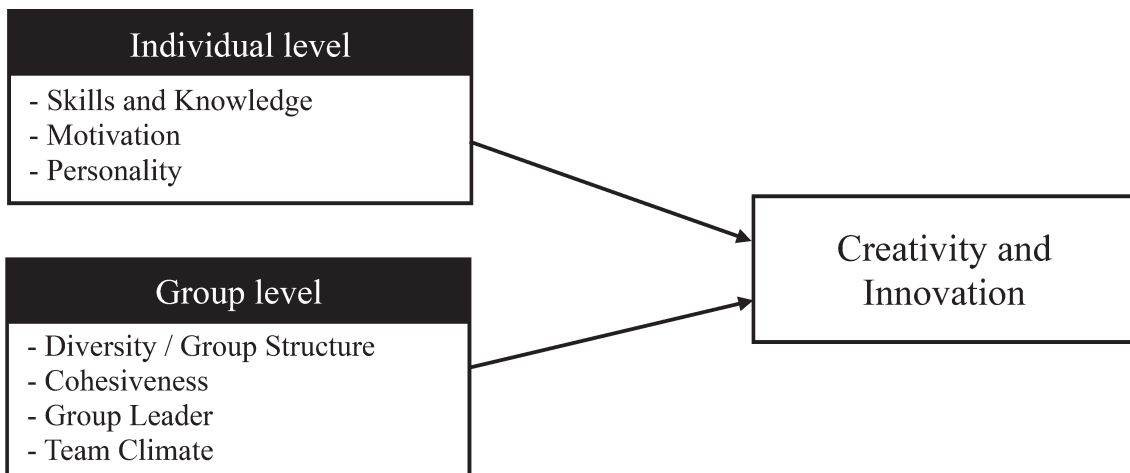


Figure 1 Conceptual Framework

Discussion

In this section, the research findings are discussed based on the research questions. Further, the findings from the present study are compared to those of prior research studies.

RQ1: What and How the Antecedent Factors Foster Innovation at the Individual Level

Theme 1: Skills and knowledge

Most of the participants that mentioned skills and knowledge commented that it was essential for an individual to have job knowledge and technical skills regarding their job before he or she can administer it for better. These findings are consistent with the previous research of many theorists that suggested that knowledge is an essential pre-requisite for innovation. It is more likely that creative ideas can be generated if one has specific knowledge about the work (Woodman et al., 1993). Moreover, Amabile (1998) pointed out that the more skills the creative employees have, the better is the creativity that can be accomplished.

Further, some of the participants indicated the individual's broad experience that can enhance his/her knowledge. They suggested that participating in training or visiting and exhibition could increase the individual's knowledge related to the job. The findings are consistent with previous study that described skills and knowledge. Training, job rotation, and on-the-job training can enhance skills and knowledge (Morrison & Brantner 1992).

Theme 2: Motivation

According to the interviews, 32.17% the participants agreed that motivation was an important factor related to innovation. However, 11.89% out of 32.17% of the participants, especially those that worked in R&D, viewed that intrinsic motivation was more important than extrinsic motivation. They mentioned that it was a challenge for them to create something new. There have been numerous studies that support the idea that intrinsic motivation is a mediator of creativity, for example, Choi (2004) and Jesus et al. (2013), who stated that there is an association between intrinsic motivation and creativity. Moreover, Amabile viewed that intrinsic motivation is a foundation of creativity. She suggested that people are motivated to do work because the work is interesting, challenging, and captivating.

In contrast, 20.28% out of 32.17% of the participants, especially the staff, indicated that extrinsic motivation promotes creativity rather than intrinsic motivation. Interestingly, an overwhelming majority of the staff agreed that they were motivated by extrinsic motivation. These findings are broadly in line with some theorists that have suggested that extrinsic motivation influences the motivation of a person (e.g., Abbey & Dickson, 1983; Eisenberg & Cameron, 1996). On the other hand, the findings differed from Amabile's (1998) suggestion that extrinsic motivation tends to decrease creativity.

Theme 3: Personality

According to the findings, 34.27% of the participants agreed that personality was an important factor related to innovation. Personality was the most frequently-mentioned factor among the three themes regarding the antecedent factors at the individual level. . Moreover, sub-themes were derived from the findings: a) creative, b) ambitious, c) curious, and d) observational.

Personality has been widely recognized as a factor associated with innovation by several researchers (e.g., Costa & McCrae, 1992; Feist, 1999; Woodman et al., 1993). According to Feist (1999), much of the empirical evidence has demonstrated a positive relationship between the characteristics of a person that tend to engage with innovation, for example, being imaginative and flexible. Similar to the above findings, Costa and McCrae (1992) proposed the five-factor model traits. This model explains the traits of a person, consisting of conscientiousness, openness to experience, agreeableness, extraversion, and emotional stability. This model has been applied to the investigation of the personality of a person as it is related to creativity.

Although some sub-themes of this study, such as being creative and curious may seem to be relevant to the openness to experience proposed by Costa and McCrae (1992), the rest of the sub-themes (observational and ambitious types of persons) did not appear in any of the dimensions proposed in the five-factor model.

RQ 2: What and How the Antecedent Factors Foster Innovation at the Group Level

Theme 1: Diversity/group structure

One of the themes that emerged from the current analysis of the antecedent factors at the group level was diversity/group structure. This is also in line with previous study (e.g., Woodman et al., 1993) that indicated that groups with a variety of backgrounds and perspectives have a chance to be able to generate new ideas if they are given sufficient time to do so.

Moreover, according to the findings, some of the participants suggested encouraging the team to have a balanced level of diversity when assigning projects. They mentioned that in order to diversify a team and to have people with a variety of diverse backgrounds can result in higher creativity. This idea is in line with the study of Amabile (1998), which suggested that diversifying expertise within the team can inspire the rest of the team members. Moreover, most of the problems can be solved through the peer learning process.

Theme 2: Cohesiveness

According to the findings, 7.07% of the participants revealed a relationship between cohesiveness and group innovation. Some of them suggested that when there is a close relationship among team members, it is more likely that team members will have more confidence in expressing new ideas. In contrast, some of the participants revealed that too much cohesiveness within the team may have a negative impact on innovation.

The study results are consistent with King and Anderson's (1990), who stated that an optimal level of cohesiveness could support group creativity. In addition, Brown and Eisenhardt (1995) also pointed out that a team with a high level of social cohesion frequently resolves conflict and problem as well as increases the amount of information sharing among members of the team. This typically results in higher creativity.

Theme 3: Group leader

According to the findings, 19.19% of the participants revealed that the group leader had a strong influence on promoting innovation within the firm. Apparently, the group leader can help promote innovation by encouraging employees to think “outside the box” or advising employees on issues related to innovation.

These findings are broadly in line with many past studies. The relationship between the leader and innovation has been studied for many decades by various scholars (e.g., Howell & Higgins, 1990; Kanter, 1983). According to a study of Howell and Higgins (1990), transformational leadership and participative leadership were emphasized as key factors related to organizational innovation. In addition, there has been much evidence demonstrating a relationship between leadership and innovation (e.g., Jung, Wu, & Chow, 2008; Kelley & Lee, 2010). For example, Jung, Wu, and Chow (2008) pointed out an association between transformational leadership and organizational innovation in a positive way.

Theme 4: Team climate

According to the findings, 31.31% of the participants indicated that team climate is another important factor that influences innovation at the group level. Some of the participants revealed that positive team climates that encourage employees to think new things are more likely to produce a higher level of innovation.

These findings are in harmony with research such as that of West and Anderson (1996). A four-factor model of team climate was suggested to have a positive influence on innovation, which includes: a) participative safety – this refers to a positive climate which allows team members to be involved in the decision-making process, b) vision – this refers to clear objectives and directions provided to team members, c) support for innovation – this refers to practical support by the organization to improve the ways of doing things, and d) task orientation/excellence – this refers to shared objectives reflected in tasks, goals, and processes that are concerned with the quality of the task.

Implication for Scholars

The main contribution of this research was to provide a broad view of the perception and antecedent factors regarding innovation in Thai SMEs. As this study employed a qualitative method through in-depth interviews as a tool to collect the information from the participants, the findings provided richer and more useful information pertaining to understanding what antecedent factors influence innovation in Thai SMEs and how.

Historically, there has been less research emphasizing the group level of analysis. Moreover, an integrated framework among each level of analysis is still underexplored. Essentially, this study examined the antecedent factors at the multi-level of study (individual, and group level), which added to the large body of research and empirical evidence on innovation. Thus, the findings concerning innovation provided in this study might be useful for other researchers and scholars in conducting future studies on related issues.

Implication for Practices

It is considered that in order to increase innovation within firms, effective HR interventions should be implemented at the individual, group and organization level. In this part of the present study, the implications for practice are discussed. Moreover, some of the functions in the HR wheel proposed by Mclagan (1989) are used to illustrate interventions facilitating innovation.

Selection and Staffing

The findings suggested that personality or the characteristics of persons can have a positive influence on creativity. Thus, HR professionals should utilize this opportunity to recruit persons that tend to have those characteristics by using a personality assessment.

Indeed, there are many instruments to measure the personality of a person, such as the Occupational Personality Questionnaire (OPQ) proposed by Savillein (1973), Jackson's (1976) Personality Inventory, and the Innovation Potential Indicator (IPI)

proposed by Patterson (2000) Each instrument has its unique characteristics that could be utilized based on the purpose of the organization. For example, the IPI may be appropriate for assessing all important motivational dimensions that influence individual innovation. More importantly, after the company recruits potentially innovative employees, the next process is to provide opportunities for them to further their skills in order to leverage their potential.

Compensation and Benefits

The findings demonstrated that motivation is one of the factors that influence individual creativity. Practitioners could utilize the findings by conducting interventions that are appropriate for each individual, such as the right balance of recognition and reward system. Prior research suggested that external rewards can facilitate creativity and innovation (e.g., Amabile et al., 1996; Eisenberg & Cameron, 1996). For example, Amabile et al. (1996) addressed the idea that external rewards such as a bonus or a way to allow employees to engage in more interesting work can facilitate creativity.

In contrast, some studies showed that intrinsic motivation has a positive relationship with creativity rather than extrinsic motivation (e.g., Choi, 2004; Jesus et al., 2013). Thus, it is important to establish a reward system that capitalizes both on intrinsic and extrinsic rewards (Mumford, 2000).

Training and Development

The findings suggested that the skills and knowledge of the individual are of utmost importance to the implementation of creativity. Several researches argued that training in a variety of skills is more likely to facilitate one's way of thinking, which results in more creative ideas (Shipton et al., 2006). In addition, HR practitioners can provide opportunity for employees to participate in external conferences, and visit other customers and supplier sites which might enhance their skills and knowledge.

In addition, it was suggested by many scholars and also was suggested by the findings that leaders play a very significant role in supporting innovation (e.g., Peters & Waterman, 1982). The study found that leaders' attitudes influence innovative performance in several ways (McDonough, 1993). Thus, the roles of leaders and

managers should not be disregarded. It is a challenge for HR practitioners to create a training program that focuses on the development of leadership skills in order to manage and retain innovative employees.

Diversity Management

According to the findings, diversity was another factor that was seen to influence innovation at the group level. Moreover, the past literature has shown that diversity has a positive effect on innovation because with it is likely that a variety of ideas can be generated (e.g., Martin, 2014; Woodman et al., 1993). Martin (2014) mentioned that different cultures of the workforce usually have different ways of thinking which results in a variety of perspectives. On the other hand, diversity may have a negative influence on innovation in several ways. Too much diversity is believed to be a factor that decreases group cohesiveness and creates more conflict (e.g., Anderson & King, 1991; Martin, 2014).

Moreover, in order to achieve the positive effect of diverse workforces, diversifying the team members in each team may result in higher creativity. In a team, the different knowledge, experiences, and technical know-how of the diverse background of employees should be included in order to successfully implement the project (Holtzman & Anderberg, 2011).

Limitations of the Study and Recommendations for Future Research

First, this study applied only a qualitative method. Although this approach can provide deep experiences and explain complicated situations, the quantitative approach could provide a broader view on these very particular issues. However, there might be other aspects that could be explored through the quantitative analysis such as the relationships between the constructs and the relationships between the groups of analysis.

Second, because of the time limitations of this study, the researchers employed only 13 companies located in Bangkok and metropolitan areas. Thus, the results may not be able to be generalized to all SMEs in Thailand. Future research should recruit

more participants from different geographical locations in order to explore the phenomena which in turn would strengthen the research findings. In this way, the results could be better generalized.

Third, although the researchers tried to minimize bias in this dissertation, some may question the subjectivity issue, which is often discussed in a qualitative study. In this study, in order to avoid bias, such as data interpretation bias, the researchers read the transcripts carefully several times and re-coded the data in order to ensure the correctness of the findings. However, future research should employ inter-raters to re-check the coding results as well as the interpretations. Moreover, sending the transcripts back to the participants in order to check for correctness is another alternative for avoiding bias.

Last, this study focused only on the perceptions of innovation and the antecedent factors that foster innovation regardless of processes that create creativity and innovation. Moreover, some aspects of the external environment such as government policy and social intervention were not included in the analysis. Future study should focus more on the process and the relationship in each element from different levels of analysis. Further, in order to gain more understanding and a holistic view of the antecedent factors that foster and impede innovation, a broader investigation into the external environment should be explored.

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